Contents of Volume 132, No. 1

PAGE

Biosynthesis and Degradation

Choline acetyltransferase in the nettle *Urtica dioica* L.
By R. B. Barlow & R. O. D. Dixon 15

Intermediates in fatty acid oxidation.
By H. B. Stewart, P. K. Tubbs & K. K. Stanley 61

Phenethylamines in brain and liver of rats with experimentally induced phenylketonuria-like characteristics.
By D. J. Edwards & K. Blau 95

Bone collagen metabolism in vitamin D deficiency (*Short Communication*).
By M. J. Barnes, B. J. Constable, L. F. Morton & E. Kodicek 113

Inhibition of prostaglandin biosynthesis by 7-oxa- and 5-oxa-prostaglandin analogues (*Short Communication*).
By R. G. McDonald-Gibson, J. D. Flack & P. W. Ramwell 117

The synthesis of medium-chain fatty acids by lactating-rabbit mammary gland studied *in vitro* (*Short Communication*).
By C. R. Strong, E. M. Carey & R. Dils 121

Bioenergetics

Hepatic redox state and gluconeogenesis from lactate *in vivo* in the rat.
By R. A. Hawkins, C. R. S. Houghton & D. H. Williamson 19

The intramitochondrial location of the glutaminase isoenzymes of pig kidney.
By M. Crompton, J. D. McGivan & J. B. Chappell 27

Transport of glutamine and glutamate in kidney mitochondria in relation to glutamine deamidation.
By M. Crompton & J. B. Chappell 35

PAGE

The effect of glycerol and dihydroxyacetone on hepatic adenine nucleotides.
By H. F. Woods & H. A. Krebs 55

Subcellular Structures

The function of teichoic acids in cation control in bacterial membranes.
By A. H. Hughes, I. C. Hancock & J. Baddiley 83

Cellular Interactions and Control Processes

Control of synthesis and release of radioactive acetylcholine in brain slices from the rat. Effects of neurotropic drugs.
By D. S. Grewaal & J. H. Quastel 1

The effect of glucose, insulin and noradrenaline on lipolysis and on the concentrations of adenosine 3′:5′-cyclic monophosphate and adenosine 5′-triphosphate in adipose tissue.
By B. L. Knight & J. Iliffe 77

Glucose metabolism in the rat small intestine: the effect of glucose analogues on hexokinase activity (*Short Communication*).
By G. M. Jones & R. J. Mayer 125

Development

Uptake of orotate and thymidine by normal and regenerating rat livers.
By M. G. Ord & L. A. Stocken 47

Metabolism in Whole Organisms

Trimethylamine metabolism in obligate and facultative methylotrophs.
By J. Colby & L. J. Zatman 101

Contents of Volume 132, No. 2

PAGE

Biosynthesis and Degradation

Cell-free protein synthesis in heart and skeletal muscles from polymyopathic hamsters.
By A. J. Bester & W. Gevers 193

Evidence for defective transfer ribonucleic acid in polymyopathic hamsters and its inhibitory effect on protein synthesis.
By A. J. Bester & W. Gevers 203

Studies of mammalian glucoside conjugation.
By T. Gessner, A. Jacknowitz & C. A. Vollmer 249

Activities of enzymes responsible for steroid biosynthesis and cholesterol ester metabolism in rabbit ovarian interstitial tissue and corpora lutea. A comparison of enzyme activities with flow rates.
By A. P. F. Flint & D. T. Armstrong 301

Biosynthesis of a mycobacterial lipopolysaccharide. Incorporation of [^{14}C]acyl groups by whole cells *in vivo*.
By K. Narumi, J. M. Keller & C. E. Ballou 329

Subcellular Structures

Studies of nuclei separated by zonal centrifugation from liver of rats treated with thioacetamide.
By F. Gonzalez-Mujica & A. P. Mathias 163

Regulation of pyruvate metabolism via pyruvate carboxylase in rat brain mitochondria.
By M. S. Patel & S. M. Tilghman 185

Isolation and characterization of a rough microsomal fraction from rat kidney that is enriched in lysosomal enzymes.
By A. Goldstone, H. Koenig, R. Nayyar, C. Hughes & C. Lu 259

Physicochemical modifications of lysosomal hydrolases during intracellular transport.
By A. Goldstone & H. Koenig 267

Hepatic lipid droplets. Isolation, morphology and composition.
By R. P. DiAugustine, J.-M. Schaefer & J. R. Fouts 323

Malate exchange between the cytosol and mitochondria.
By R. Rognstad & J. Katz 349

PAGE

Cellular Interactions and Control Processes

Chemostat studies on the regulation of glucose metabolism in *Pseudomonas aeruginosa* by citrate.
By F. M.-W. Ng & E. A. Dawes 129

The regulation of transport of glucose and methyl α-glucoside in *Pseudomonas aeruginosa*.
By M. Midgley & E. A. Dawes 141

The uptake of 2-deoxy-D-glucose by *Pseudomonas aeruginosa* and its regulation.
By A. J. Mukkada, G. L. Long & A. H. Romano 155

The isocitrate dehydrogenases of *Acinetobacter lwoffi*. Studies on the regulation of nicotinamide–adenine dinucleotide phosphate-linked isoenzyme.
By C. H. Self, M. G. Parker & P. D. J. Weitzman 215

Interrelationship of islet metabolism, adenosine triphosphate content and insulin release.
By S. J. H. Ashcroft, L. C. C. Weerasinghe & P. J. Randle 223

Glyceride lipases in nerve endings of guinea-pig brain and their stimulation by noradrenaline, 5-hydroxytryptamine and adrenaline.
By O. S. Vyvoda & C. E. Rowe 233

Metabolism of androst-4-ene-3,17-dione by subcellular fractions of rat adrenal tissue with particular reference to microsomal C_{19}-steroid 5α-reductase.
By P. V. Maynard & E. H. D. Cameron 283

Adrenal microsomal C_{19}-steroid 5α-reductase activity in the Snell transplantable rat adrenocortical tumour 494 and the effect of oestradiol, testosterone propionate and adrenocorticotrophin in intact and gonadectomized rats.
By P. V. Maynard & E. H. D. Cameron 293

Control of ovarian cholesterol ester biosynthesis.
By A. P. F. Flint, D. L. Grinwich & D. T. Armstrong 313

Metabolism in Whole Organisms

The utilization of fructose by *Escherichia coli*. Properties of a mutant defective in fructose 1-phosphate kinase activity.
By T. Ferenci & H. L. Kornberg 341

Contents of Volume 132, No. 3

PAGE

Biosynthesis and Degradation

Free amino acids of testes. Concentrations of free amino acids in the testes of several species and the precursors of glutamate and glutamine in rat testes *in vivo*.
By I. K. Mushahwar & R. E. Koeppe 353

Biochemical studies on the sulphated glycosaminoglycan fraction of skin fibroblasts cultured from a patient with the Hurler syndrome.
By R. J. Germinario, A. Kahlenberg & L. Pinsky 395

The disorder of hyaluronic acid metabolism in cultured skin fibroblasts derived from a patient with the Hurler syndrome.
By R. J. Germinario, A. Kahlenberg & L. Pinsky 403

The degradation of L-histidine, imidazolyl-L-lactate and imidazolylpropionate by *Pseudomonas testosteroni*.
By J. G. Coote & H. Hassall 409

The control of the enzymes degrading histidine and related imidazolyl derivatives in *Pseudomonas testosteroni*.
By J. G. Coote & H. Hassall 423

The effect of carbon monoxide on the nature of the accumulated 4,4-dimethyl sterol precursors of cholesterol during its biosynthesis from [2-^{14}C]mevalonic acid *in vitro*.
By G. F. Gibbons & K. A. Mitropoulos 439

Studies on the assembly and secretion of a multicomponent protein. The biosynthesis of vitellogenin, an oestrogen-induced glycolipophosphoprotein.
By A. H. Merry, P. J. Dolphin, K. A. Munday & M. Akhtar 459

Bioenergetics

The influx of calcium ions into human erythrocytes during cold storage.
By C. Long & B. Mouat 559

The proton-translocating nicotinamide–dinucleotide (phosphate) transhydrogenase of rat liver mitochondria.
By J. Moyle & P. Mitchell 571

Stoicheiometry of lactose–proton symport across the plasma membrane of *Escherichia coli*.
By I. C. West and P. Mitchell 587

PAGE

Subcellular Structures

Subcellular organization of neurophysins, oxytocin, [8-lysine]-vasopressin and adenosine triphosphatase in porcine posterior pituitary lobes.
By J. C. Pickup, C. I. Johnson, S. Nakamura, L. O. Uttenthal & D. B. Hope 361

Regulation by cytidine nucleotides of the acylation of *sn*-[^{14}C]glycerol 3-phosphate. Regional and subcellular distribution of the enzymes responsible for phosphatidic acid synthesis *de novo* in the central nervous system of the rat.
By F. Possmayer, B. Meiners & J. B. Mudd 381

Alkaline ribonuclease and phosphodiesterase activity in rat liver plasma membranes.
By T. D. Prospero, M. L. E. Burge, K. A. Norris, R. H. Hinton & E. Reid 449

The heterogeneous distribution of acid hydrolases within a homogeneous population of cultured mammalian cells.
By J. P. Milsom & C. H. Wynn 493

Studies on the turnover of protein and glycoprotein components in rabbit kidney brush borders.
By S. J. Quirk, J. Byrne & G. B. Robinson 501

Changes in enzyme activities and distributions during glucose de-repression and respiratory adaptation of anaerobically grown *Saccharomyces carlsbergensis*.
By T. G. Cartledge & D. Lloyd 609

Cellular Interactions and Control Processes

The effect of acute and prolonged ethanol treatment on the concentrations of coenzyme A, carnitine and their derivatives in rat liver.
By J. Kondrup & N. Grunnet 373

Further observations on the activation of lysosomal acid α-glucosidase by cortisone derivatives.
By E. J. Bourne, K. Clarke, J. B. Pridham & J. J. M. Rowe 435

Androgen dynamics *in vitro* in the human prostate gland. Effect of cyproterone and cyproterone acetate.
By E. P. Giorgi, I. M. Shirley, J. K. Grant & J. C. Stewart 465

PAGE

Turnover of protein-bound serine phosphate in respiring slices of guinea-pig cerebral cortex. Effects of putative transmitters, tetrodotoxin and other agents.
By M. Reddington, R. Rodnight & M. Williams 475

Protein kinase activity in membrane preparations from ox brain. Stimulation of intrinsic activity by adenosine 3′:5′-cyclic monophosphate.
By M. Weller & R. Rodnight 483

Insulin and the regulation of adipose-tissue acetyl-coenzyme A carboxylase.
By A. P. Halestrap & R. M. Denton 509

Multiple *N*-acetyltransferases and drug metabolism. Tissue distribution, characterization and significance of mammalian *N*-acetyltransferase.
By D. J. Hearse and W. W. Weber 519

The effects of calcium ions on the activities of trehalase, hexokinase, phosphofructokinase, fructose diphosphatase and pyruvate kinase from various muscles.
By H. Vaughan, S. D. Thornton & E. A. Newsholme 527

Inhibition of spermidine formation in rat liver and kidney by methylglyoxal bis(guanylhydrazone).
By A. E. Pegg 537

Control of phosphoenolpyruvate synthesis in guinea-pig mitochondria.
By M. B. Wilson 553

Protein synthesis by perfused hearts from normal and insulin-deficient rats. Effect of insulin in the presence of glucose and after depletion of glucose, glucose 6-phosphate and glycogen.
By E. B. Chain & P. M. Sender 593

Synthesis rates of protein in the Langendorff-perfused rat heart in the presence and absence of insulin, and in the working heart.
By P. M. Sender & P. J. Garlick 603

PAGE

Adipose-tissue lipoprotein lipase activity and cellularity in the genetically obese Zucker rat (*fa/fa*) (*Short Communication*).
By P. de Gasquet, E. Péquignot, D. Lemonnier & A. Alexiu 633

The role of membrane phospholipids in the interaction of ribosomes with endoplasmic-reticulum membrane (*Short Communication*).
By S. Jothy, S. Tay & H. Simpkins 637

Phosphorylation of high-molecular-weight membrane protein species in Chinese-hamster ovary cells in culture: effect of 6-*N*,2′-*O*-dibutyryladenosine 3′:5′-cyclic monophosphate plus testosterone (*Short Communication*).
By M. Rieber & J. Bacalao 641

Concentrations of asparagine in tissues of prepubertal rats after enzymic or dietary depletion of asparagine (*Short Communication*).
By D. L. Frankel, H. Wells & L. C. Fillios 645

Biosynthesis of spheroidene and hydroxyspheroidene in *Rhodopseudomonas* species: experiments with nicotine as inhibitor (*Short Communication*).
By R. K. Singh, A. Ben-Aziz, G. Britton & T. W. Goodwin 649

Development

Developmental changes in microheterogeneity of foetal plasma glycoproteins of mice.
By D. L. Gustine and E. F. Zimmerman 541

Interrelationship of glutathione–cystine transhydrogenase and glutathione reductase in developing rat intestine.
By B. States & S. Segal 623

Acetoacetate and brain lipogenesis: developmental pattern of acetoacetyl-coenzyme A synthetase in the soluble fraction of rat brain (*Short Communication*).
By B. M. Buckley & D. H. Williamson 653

Contents of Volume 132, No. 4

PAGE

Biosynthesis and Degradation

Amino acid metabolism of experimental granulation tissue *in vitro*.
By M. Aalto, K. Lampiaho, J. Pikkarainen & E. Kulonen 663

The relationship between palmitoyl-coenzyme A synthetase activity and esterification of *sn*-glycerol 3-phosphate in rat liver mitochondria.
By M. Sánchez, D. G. Nicholls & D. N. Brindley 697

The relationship between palmitoyl-coenzyme A synthetase activity and esterification of *sn*-glycerol 3-phosphate by the microsomal fraction of guinea-pig intestinal mucosa.
By D. N. Brindley 707

Food particles as a site for biohydrogenation of unsaturated fatty acids in the rumen (*Short Communication*).
By C. G. Harfoot, R. C. Noble & J. H. Moore 829

The effect of cycloheximide on adipose-tissue clearing-factor lipase (*Short Communication*).
By A. Cryer, B. Foster, D. R. Wing & D. S. Robinson 833

Bioenergetics

Reconstitution of the energy-linked transhydrogenase activity in membranes from a mutant strain of *Escherichia coli* K12 lacking magnesium ion- or calcium ion-stimulated adenosine triphosphatase.
By G. B. Cox, F. Gibson, L. M. McCann, J. D. Butlin & F. L. Crane 689

Subcellular Structures

The oxoacyl-coenzyme A thiolases of animal tissues.
By B. Middleton 717

The synthesis of ribonucleic acid *in vivo* in the nuclei of rat brain fractionated by zonal centrifugation.
By J. Austoker, D. Cox & A. P. Mathias 813

Cellular Interactions and Control Processes

Degradation of glucose-metabolizing enzymes in the rat small intestine during starvation.
By G. M. Jones & R. J. Mayer 657

PAGE

3,4-Dihydroxyphenylalanine (dopa) decarboxylase activity in the arthropod nervous system.
By L. L. Murdock, R. A. Wirtz & G. Köhler 681

The effects of glucagon and insulin on adenosine 3′:5′-cyclic monophosphate concentrations in an organ culture of mature rat liver.
By K. Siddle, B. Kane-Maguire & A. K. Campbell 765

Iodoacetamide-induced sensitization of the pancreatic β-cells to glucose stimulation.
By B. Hellman, L.-Å. Idahl, Å. Lernmark, J. Sehlin & I.-B. Täljedal 775

Control of ornithine decarboxylase activity in stimulated human lymphocytes by putrescine and spermidine.
By J. E. Kay & V. J. Lindsay 791

Serum factors affecting the incorporation of [^{3}H]uridine by lymphocytes stimulated by concanavalin A. Studies of the role of complement.
By P. Milthorp & D. R. Forsdyke 803

Development

The acetoacetyl-coenzyme A thiolases of rat brain and their relative activities during postnatal development.
By B. Middleton 731

Glucose metabolism in the newborn rat. Temporal studies *in vivo*.
By K. Snell & D. G. Walker 739

Metabolism in Whole Organisms

Interrelationships in trace-element metabolism in metal toxicities in a cobalt-resistant strain of *Neurospora crassa*.
By G. Venkateswerlu & K. Sivarama Sastry 673

Metabolism of methylamine in the tea plant (*Thea sinensis* L.).
By T. Suzuki 753

Microbial metabolism of C_1 and C_2 compounds. The role of acetate during growth of *Pseudomonas* AM1 on C_1 compounds, ethanol and β-hydroxybutyrate.
By P. M. Dunstan & C. Anthony 797

The plasma transport and metabolism of retinoic acid in the rat.
By J. E. Smith, P. O. Milch, Y. Muto & D. S. Goodman 821